

SUPPORT FOR THE AMENDMENTS

Claims 13 and 19 have been amended.

Claims 9, 10, and 21-24 have been canceled.

Claim 25 has been added.

The amendment to Claim 13 is supported by the original Claims 1-12 and, at least, page 2, lines 67 and page 13, line 6 to page 14, line 6 of the specification and the Examples.

Support for the amendment of Claim 19 is provided by original Claim 1 and by the specification, at least, at page 8, lines 4-12 and page 9, lines 6-14. New Claim 25 is supported by, at least, Example 8 (see, for example, Table 2 on page 26).

No new matter is believed to have been entered by the present amendments.

REMARKS

Claims 1-8, 11-20, and 25 are pending in the present application.

The rejection of Claims 19-24 under 35 U.S.C. §112, first paragraph (enablement), is obviated by amendment.

Applicants make no statement with respect to the propriety of this ground of rejection and in no way acquiesce to the same. Solely to expedite examination, Applicants have amended Claim 19 to specify that the molded sheet has a content of components other than the fibrous material of 50% by weight or higher, a thickness of 0.08 to 1.2 mm, and a breaking length of 100 to 4000 m. Claims 21-24 have been canceled thus obviating the rejection of these claims.

Applicants request withdrawal of this ground of rejection.

The rejections of: **(a)** Claims 1-3, 7, and 13-15 under 35 U.S.C. §103(a) over JP 1-201253 (JP '253) in view of US 6,133,170 (Suenaga et al) and **(b)** Claims 4-6, 8, 11-12, 16-20, 22, and 24 under 35 U.S.C. §103(a) over JP 1-201253 (JP '253) in view of US 6,133,170 (Suenaga et al) and further in view of Koiso et al (US 5,975,074 or US 6,127,294), are respectfully traversed.

The Examiner alleges that JP '253, when viewed with Suenaga et al, disclose the claimed molded sheet. Applicants continue to disagree noting that JP '253, even when combined with Suenaga et al, fail to disclose or suggest all of the features of the claimed invention. Notably, none of JP '253, Suenaga et al, or Koiso et al disclose or suggest the claimed balance between the content of components other than the fibrous material, the thickness, and the breaking length.

It is well-settled that the discovery of a problem can support patentability. See *Eibel Process Co. v. Minn. & Ont. Paper Co.*, 261 U.S. 45, 66 (1923). In the present application, it is clearly illustrated in the Examples that the balance between the content of components other than the fibrous material, the thickness, and the breaking length provides molded sheets lead to superior advantages with respect to heat generating, steam generating, and/or molding properties. At no point is JP '253, Suenaga et al, or Koiso et al at all concerned with the problems of heat generating, steam generating, and/or molding properties when the claimed ranges are not met. The discovery of a problem is often the key to making a patentable invention. Thus, the patentability of an invention under 35 U.S.C. §103 must be evaluated against the background of the highly developed and specific art to which it relates, and this background includes an understanding of those unsolved problems persisting in the art solved by the invention. See, *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 43 S.Ct. 322, 67 L.Ed. 523 (1923).

With respect to the fibrous material, the claims require that the content of the “components other than the fibrous material” is “50% by weight or higher”. Thus, the fibrous material content cannot exceed 50%. The Examiner points to Table 1 of JP '253 and asserts that this reference does disclose products having a content of components other than the fibrous material of 50% by weight or greater. However, the amount of fibrous material is made is at page 6, last paragraph, of JP '253, but this is only in relation to the “suspension” prior to manufacturing the sheet-like heating member. This appears to be the same method employed in the Examples referenced in Table 1 of JP '253 (see page 9). Further, the thickness of the resultant sheet-like heating members in Table 1 is 5 mm, which is clear not within or relevant to the claimed invention which requires that the thickness be between 0.08

and 1.2mm. Thus, the presently claimed invention is not obvious in view of JP '253 and Suenaga et al.

With respect to the thickness, the claims require that the thickness range from 0.08 to 1.2 mm. The Examiner cites page 7, third paragraph, of JP '253 as disclosing a sheet thickness ranging from 0.2 to 10 mm and alleges that Example 1 shows a sheet with a thickness of 1.2 mm. First, the Examiner's allegation related to Example 1 is incorrect as Example 1 discloses a sheet thickness of 5 mm, *not* 1.2 mm. Further, page 7, third paragraph, of JP '253 actually discloses that the preferable thickness is 2 to 8 mm, which would lead the artisan away from the claimed invention. Certainly this disclosure coupled with the aforementioned lack of a disclosure of the fibrous material content would not provide the artisan with any reasonable suggestion of the claimed invention. Indeed, while it may ordinarily be the case that the determination of optimum values for the parameters of a prior art process would be at least *prima facie* obvious, that conclusion depends upon what the prior art discloses with respect to those parameters. Where, the prior art disclosure suggests the outer limits of the range of suitable values, and that the optimum resides within that range, and where there are indications elsewhere that in fact the optimum should be sought within that range, the determination of optimum values outside that range may not be obvious. (*In re Sebek*, 175 USPQ 93, 95 (CCPA 1972)). This is true in this case as well. Thus, for this additional reason, the claimed invention is not obvious in view of JP '253 and Suenaga et al.

As for the breaking length, the claims require that the breaking length range from 100 to 4000 m. The Examiner alleges that breaking length is a recognized result effective variable and, therefore, alleges that the optimum value is a matter of routine optimization. Applicants submit that the Examiner has not established that the breaking length is a results effective variable and/or that the artisan would have any appreciation as to how the range

may be altered to meet the claimed value without further differing from the claimed invention with respect to the fibrous material content and the thickness.

Applicants remind the Examiner that a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy). The Examiner has failed to establish that breaking length is a variable which achieves a recognized result.

The Examiner cites Suenaga et al as evidencing that “breaking strength... can be obtained by the use of blended pulp, use of crosslinked fibers...” Applicants submit that Suenaga et al does not support the position that breaking length is a result effective variable. All Suenaga et al establishes is it is possible to alter breaking length. Moreover, Applicants refer to Comparative Example 5 as showing that breaking length is impacted by more than mere optimization as when an electrolyte is present in the amount in Comparative Example 5, the breaking length exceeds the upper threshold. Thus, for this additional reason, the claimed invention is not obvious in view of JP ‘253 and Suenaga et al.

Even if it is the Examiner’s position that modifications in the cited references would have been within the general abilities of the skilled artisan, a statement that modifications of the prior art to meet the claimed invention would have been “well within the ordinary skill of

the art at the time the claimed invention was made” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). At best, the combined disclosures could be taken as an “invitation to experiment” or could be viewed as providing an “obvious to try” argument. However, “obvious to try” has long been held not to constitute obviousness. *In re O'Farrell*, 7 USPQ2d 1673, 1680 81 (Fed. Cir. 1988). A general incentive does not make obvious a particular result, nor does the existence of techniques by which those efforts can be carried out. *In re Deuel*, 34 USPQ2d 1210, 1216 (Fed. Cir. 1995).

KSR International Co. v. Teleflex Inc., 550 U.S.____, 82 USPQ2d 1385 (2007) does not eliminate the “obvious to try is not obvious” standard, as it clearly states that “obvious to try” may constitute obviousness, but only under certain circumstances. Specifically, *KSR* stated that the fact that a claimed combination of elements was “obvious to try” might show that such combination was obvious under 35 U.S.C. § 103, since, if there is design need or market pressure to solve problem, and there are finite number of identified, predictable solutions, person of ordinary skill in art has good reason to pursue known options within his or her technical grasp, and if this leads to anticipated success, it is likely product of ordinary skill and common sense, not innovation. However, the Examiner offers nothing to show how these factors apply and whether there would be such an expectation or anticipated success.

The fact of the matter remains, there must be some reasonable expectation of success. To this end, “the prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success.” *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Further, the Examiner is reminded that

Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. “The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims... In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.” *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

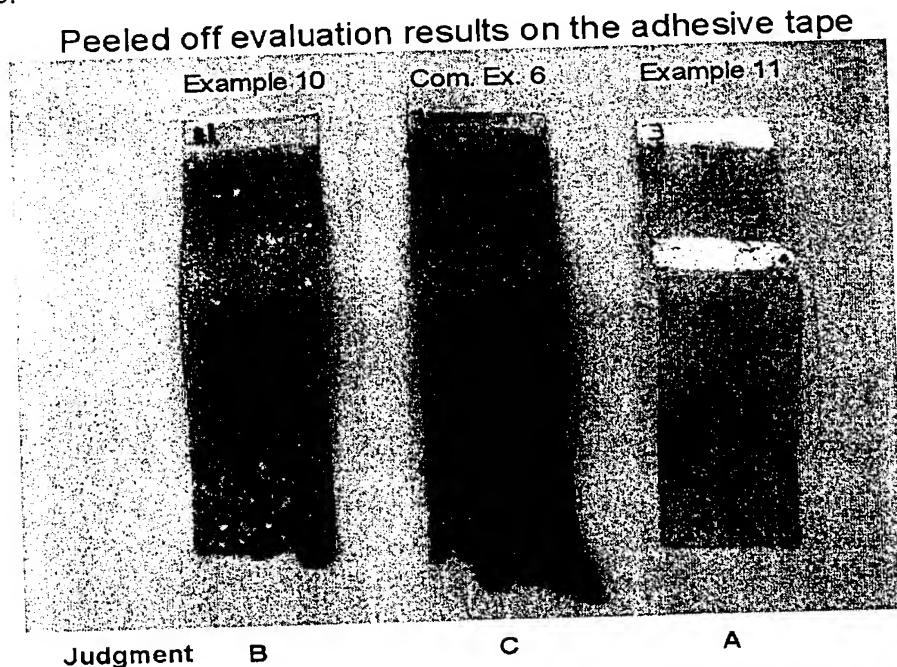
To this end, Applicants **submit herewith** a Declaration under 37 C.F.R. §1.132 executed by Yoshiaki Kumamoto (“the Kumamoto Declaration”). In the Kumamoto Declaration (paragraphs 7-10), the declarant provides a detailed summary of the experimental data of record including some new experiments, which are designed to illustrate the criticality of the content of components other than the fibrous material, the thickness, and the breaking length. Based on these data, in paragraphs 11-14, the Kumamoto Declaration offers the following analysis and conclusions:

11. With respect to the criticality of the breaking length (i.e., a breaking length of 100 to 4000 m), reference is made to Example 2, Example 8, Example 10, Example 11, Comparative Example 5 and Comparative Example 6. The Test conditions for these examples are provided, in part, in the following table for convenience:

Sample	Breaking Length (m)	Basis Weight	Thickness (mm)	Number of flexes	Angle of break	Molded properties	Peeled off evaluation	Duration of Maintaining at $\geq 40^{\circ}\text{C}$ (min)**	Amount of Generated Steam (mg)
Ex. 2	342	464	0.62	≥ 200	90	A		4.5	344
Ex. 8	1555	433	0.62	≥ 200	90	A		5.3	137
Ex. 10	195	430	0.47	30	90		B	9.4	224
Ex. 11	2589	406	0.55	≥ 200	90		A	14.2	125
CE. 5	4179	468	0.66	≥ 200	90	A		0.0	64
CE. 6	45	396	0.47	39	90		C	4.8	177

From the foregoing and the discussion on page 27 of the specification, all the heat generating sheets prepared by using the molded sheets meeting the claimed breaking length limitation exhibited superior heat generation characteristics, that is, they maintained temperatures of 40°C or higher for a longer period of time and/or generated more steam as compared to the comparative examples where the breaking length is either above (Comparative Example 5) or below (Comparative Example 6) the claimed range of 100 to 4000 m. Furthermore, the molded sheets of the present invention had high flexibility even after heat generation reaction. In contrast, the heat generating sheets obtained in Comparative Example 5 (breaking length above the claimed range) had the following defects: was inferior in both heat generation characteristics and steam generation characteristics.

Noting that Comparative Example 6 showed a good number of flexes, the peeled off evaluation was added for the additional data in the table in paragraph 10 above. The results appear in the following figure:



These results clearly illustrate that when the breaking length is below the claimed range, the resulting molded sheet has inferior properties as compared to when the breaking length is within the claimed range.

12. With respect to the criticality of the powder content (i.e., content of components other than the fibrous material of 50% by weight or higher), reference is made to Example 12 and Comparative

Example 12 appearing in the table in paragraph 10 above. In this table it is clearly illustrated that all the heat generating sheets prepared by using the molded sheets meeting the claimed powder content limitation exhibited superior heat generation characteristics, that is, they reached higher temperatures, maintained temperatures of 40°C or higher for a longer period of time, and generated more steam as compared to the comparative examples where the powder content was below the claimed amount (Comparative Example 7).

13. With respect to the criticality of the thickness (i.e., thickness of 0.08 to 1.2 mm), reference is made to Examples 1-9 and Comparative Examples 1 and 2 in the specification, as well as new Example 13 and Comparative Examples 8 and 9. These results clearly illustrate that when the thickness is outside the claimed range, even though heat and steam generation may be satisfactory, the molded sheet was so brittle that it broke easily and had poor molding properties. This is most directly shown in new Example 13 and Comparative Examples 8 and 9 where the only variable substantially modified was the thickness.

14. None of the art of record provides any disclosure or suggestion of the importance of any one of the content of components other than the fibrous material, the thickness, and the breaking length. In addition, none of the cited references provide a basis to conclude that by maintaining the content of components other than the fibrous material of 50% by weight or higher, a thickness of 0.08 to 1.2 mm, and a breaking length of 100 to 4000 m, molded sheets having superior heat generating, steam generating, and/or molding properties could be obtained. Thus, the results set forth in the specification and in this Declaration would not be expected in view of the cited art in the Office Action mailed December 16, 2008.

Applicants respectfully submit that the experimental data set forth in the specification and in the Kumamoto Declaration are sufficient to rebut even a *prima facie* case of obviousness.

The Koiso et al (US 5,975,074 or US 6,127,294) references are cited as allegedly disclosing that electrolytes can be added either to the slurry or to the intermediate web after it has been dried. Applicants make no statement with respect to this allegation and in no way acquiesce to the same. However, Applicants do submit that the Koiso et al (US 5,975,074 or

US 6,127,294) references fail to compensate for the deficiencies in the combined disclosures of JP '253 and Suenaga et al above. As such, the claimed invention is not obvious in view of the combined disclosures of JP '253, Suenaga et al, and Kosio et al.

Applicants request withdrawal of these grounds of rejection.

The rejections of: **(a)** Claims 21 and 23 under 35 U.S.C. §112, first paragraph (enablement), **(b)** Claims 9, 10, 21, and 23 under 35 U.S.C. §102(b) and/or under 35 U.S.C. §103(a) over JP 1-201253 (JP '253), **(c)** Claims 19, 23, and 24 under 35 U.S.C. §102(b) over Pattiloch et al or Snyder et al, and **(d)** Claims 21 and 23 under 35 U.S.C. §102(b) and/or under 35 U.S.C. §103(a) over Koiso et al (US 5,975,074 or US 6,127,294), are obviated by amendment.

Applicants make no statement with respect to the propriety of this grounds of rejection and in no way acquiesce to the same. Solely to expedite examination, Applicants have canceled Claims 9, 10, and 21-24, thus obviating the rejection of these claims.

Applicants request withdrawal of these grounds of rejection.

Finally, Applicants respectfully request that the provisional obviousness-type double patenting rejections of:

(a) Claims 7-12 over Claims 1-4 and 11 of US 10/490,120; and

(b) Claims 1-12 over Claims 12-23 of US 10/566,471,

be held in abeyance until an indication of allowable subject matter in the present application.

If necessary, a terminal disclaimer will be filed at that time. Until such a time, Applicants make no statement with respect to the propriety of this ground of rejection.

The Examiner is reminded that MPEP §804 indicates that: "If "provisional" ODP rejections in two applications are the only rejections remaining in those applications, the examiner should withdraw the ODP rejection in the earlier filed application thereby permitting that application to issue without need of a terminal disclaimer."

Applicants submit that the application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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